## 05325000 MINNESOTA RIVER AT MANKATO, MN--Continued

PERIOD OF RECORD. -- Water years 1963-66, 1968 to current year.

SUSPENDED-SEDIMENT DISCHARGE .-- October 1967 to current year.

## PERIOD OF DAILY RECORD:

WATER TEMPERATURES.-- October 1967 to September 30, 1981, October 1982 to current year (fragmentary records).

REMARKS.--Sediment samples were collected daily by an observer Oct. 3-18 and Mar. 24 to May 3. In general, daily concentrations and loads for the open-water period are considered fair to poor. During the winter period, and for periods of no observer samples, daily sediment concentrations and loads are based primarily on concentrations of sediment in samples that were collected monthly, and on daily water-discharge records. Sediment records for the winter period are considered poor. Water temperatures were obtained by the observer at the time of sediment sampling, and monthly by U.S. Geological Survey personnel.

## EXTREMES FOR PERIOD OF DAILY RECORD:

WATER TEMPERATURES.-- Maximum observed, 31.0 C, July 4-9, 1989; minimum observed, 0.0 C on many days most winters.

SEDIMENT CONCENTRATIONS .-- Maximum daily mean, 2,850 mg/L, Aug. 7, 1968; minimum daily mean, 9 mg/L, Jan. 15-19, 1991.

SEDIMENT LOADS.-- Maximum daily, 414,000 tons, June 21, 1993; minimum daily, 5.2 tons, Nov. 6, 1976.

## EXTREMES FOR CURRENT YEAR:

WATER TEMPERATURES.-- Maximum observed, 28.0 C, Aug. 1; minimum observed, 2.0 C, Jan. 4, Feb. 3 (assumed to be 0.0 C, many days during winter).

SEDMENT CONCENTRATIONS.-- Maximum daily mean, 1,550 mg/L, May 20; minimum daily mean, 60 mg/L, Oct. 20-29.

SEDIMENT LOADS.-- Maximum daily, 62,000 tons, June 4; minimum daily, 62 tons, Sep. 18.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000 DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							12				28	
2												
3	11				2.0		12	20				
4	11			2.0			12	20				
5							12					
6	12						12					
7	12						11					
8	13						12					
9							12					
10							12					
11	12						12					
12	11						11					
13	11						12					
14	11						12	14				
15	10						12					
	10											
16												
17							13					
18							12					
19							11					19
20							11					
21							12					
22												
23												
24						12	13	20				
25						13						
26						11	13					
27						11						
28						10	14		21			17
29						10						
30						10						
31						12						

05325000 MINNESOTA RIVER AT MANKATO, MN--Continued

SUSPENDED-SEDIMENT,	WATER	YEAR	OCTOBER	1999	TO	SEPTEMBER	2000	

			DODELIND	ED-SEDIM	ENI, WAIER	IEAR OC	TOPER ISSS	IO SEPII	EMBER 2000			
DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
	OCTO:	BER	NOVEMB	ER	DECEMB	ER	JANUA	RY	FEBRUA	RY	MARCI	Н
1 2 3 4 5	95 95 108 118 122	264 250 273 292 329	90 110 128 145 156	228 258 275 293 310	141 141 140 140 140	307 319 319 316 312	135 135 135 135 134	197 197 197 197 199	93 93 93 92 92	105 105 105 107 109	280 265 245 233 223	2220 1870 1610 1580 1640
6 7 8 9 10	120 114 105 98 90	392 400 357 286 241	160 162 160 155 152	311 319 320 309 307	140 140 140 140 140	300 293 298 305 307	130 128 125 122 120	193 190 182 178 172	91 91 91 91	108 108 111 111 113	223 230 230 230 230	1600 1510 1470 1550 1560
11 12 13 14 15	83 75 71 69 67	210 178 161 156 152	151 151 150 150	311 322 322 320 322	139 139 139 139 139	303 286 284 290 303	118 116 114 112 111	166 163 157 154 150	91 92 92 93 94	113 114 117 118 122	220 210 205 200 195	1510 1420 1380 1320 1250
16 17 18 19 20	65 63 62 61 60	149 141 141 150 153	150 150 149 149 149	328 326 325 334 327	138 138 138 138 138	270 250 246 253 261	110 109 108 106 104	148 147 146 140 135	95 96 97 98 99	126 130 134 135 136	190 181 176 170 163	1170 1070 1020 973 911
21 22 23 24 25	60 60 60 60	158 162 156 153 154	148 148 148 147 146	325 330 348 339 332	137 137 137 137 137	248 240 215 196 192	102 101 100 100 99	127 120 116 116 115	100 100 100 100 100	140 140 151 159 230	160 154 149 142 138	873 827 793 759 712
26 27 28 29 30 31	60 60 60 66 78	149 144 143 146 167	145 144 143 142 142	331 328 321 317 307	136 136 136 136 136	191 191 191 191 191 195	98 97 96 95 94	114 110 109 108 107	145 200 250 265 	470 1080 1690 2450 	131 130 130 130 137 135	651 646 635 597 614 612
TOTAL	L	6404		9445		8063		4657		8837		36353
DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
DAY	CONCEN- TRATION	(TONS/ DAY)	CONCEN- TRATION	(TONS/ DAY)	CONCEN- TRATION	(TONS/	CONCEN- TRATION	(TONS/ DAY)	CONCEN- TRATION	(TONS/ DAY)	CONCEN- TRATION	(TONS/ DAY)
DAY  1 2 3 4 5	CONCEN- TRATION (MG/L)	(TONS/ DAY)	CONCEN- TRATION (MG/L)	(TONS/ DAY)	CONCEN- TRATION (MG/L)	(TONS/	CONCEN- TRATION (MG/L)	(TONS/ DAY)	CONCEN- TRATION (MG/L)	(TONS/ DAY)	CONCEN- TRATION (MG/L)	(TONS/ DAY)
1 2 3 4	CONCENTRATION (MG/L)  APR  132 130 125 120	(TONS/DAY)  IL  638 656 638 583	CONCEN- TRATION (MG/L)  MAY  75 74 74 73 73 73	(TONS/DAY)  286 266 266 266 260 249 243	CONCEN- TRATION (MG/L) JUNE 350 1050 1450 1400	(TONS/DAY)  10300 40300 57600 62000 60500  51500 44900	CONCENTRATION (MG/L)  JULY  212 230 275 310 318 320 310	(TONS/DAY)  2520 2810 3370 3770	CONCENTRATION (MG/L)  AUGUS'  157 153 146 140 135	(TONS/DAY)  T  1110 1030 926 828	CONCEN- TRATION (MG/L) SEPTEM 84 82 80 79	(TONS/ DAY) BER 168 165 159 155
1 2 3 4 5 6 7 8 9	CONCEN- TRATION (MG/L)  APR  132 130 125 120 115 110 107 104 102	(TONS/DAY)  IL  638 656 638 583 546 517 485 446 410	CONCENTRATION (MG/L)  MAY  75 74 74 73 73 72 72 85 130	(TONS/DAY)  286 266 266 266 260 249 243 326 463	CONCEN- TRATION (MG/L)  JUNE  350 1050 1450 1450 1400 1350  1280 1180 1100 940	10300 40300 57600 62000 60500 51500 44900 40400 28900	CONCENTRATION (MG/L)  JULY  212 230 275 310 318 320 310 295 285	(TONS/DAY)  2520 2810 3370 3770 4060  4670 5130 4690 4470	CONCEN- TRATION (MG/L)  AUGUS'  157 153 146 140 135 130 130 138 146	(TONS/DAY)  I 1110 1030 926 828 722 632 593 745 788	CONCEN- TRATION (MG/L)  SEPTEMI  84  82  79  78  76  75  73  72	(TONS/DAY) BER  168 165 159 155 144 117 117 112 98
1 2 3 4 5 6 7 8 9 10 11 12 13 14	CONCEN- TRATION (MG/L)  APR  132 130 125 120 115 110 107 104 102 100  98 96 93 91	(TONS/DAY)  IL  638 656 638 583 546 517 485 446 410 370 349 319 299 295	CONCENTRATION (MG/L)  MAY  75  74  74  73  73  72  72  72  85  130  340  360  350  330  325	(TONS/DAY)  286 266 266 266 260 249 243 326 463 1210 1790 2130 1870 1660	CONCEN- TRATION (MG/L)  JUNE  350 1050 1450 1400 1350  1280 1180 1100 940 780  650 580 520 470	10300 40300 57600 60500 51500 44900 40400 28900 20500 15000 11600 9650 8320	CONCENTRATION (MG/L)  JULY  212 230 275 310 318 320 310 295 285 295 380 700 790 800	2520 2810 3370 4060 4670 5130 4690 4470 5060 9510 22900 29600 31500	CONCEN- TRATION (MG/L)  AUGUS'  157 153 146 140 135 130 138 146 150 150 145 140 135	(TONS/DAY)  T  1110 1030 926 828 722 632 593 745 788 830 964 900 794 693	CONCEN- TRATION (MG/L)  SEPTEMI  84  82  80  79  78  76  75  73  72  71  70  69  68  68	(TONS/DAY) BER  168 165 159 155 144 117 112 98 97 93 85 80 78
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	CONCEN- TRATION (MG/L)  APR  132 130 125 120 115 110 107 104 102 100  98 96 93 91 89 87 86 85 84	(TONS/DAY)  IL  638 656 638 583 546 517 485 446 410 370 349 319 295 286 280 281 280 281 289 304	CONCENTRATION (MG/L)  MAY  75  74  74  73  73  72  72  85  130  340  360  350  325  322  320  320  320  370  1500	(TONS/DAY)  286 266 266 266 266 249 243 326 463 1210 1790 2130 1870 1660 1610 1710 1810 4560 39500	CONCEN- TRATION (MG/L)  JUNE  350 1050 1450 1400 1350  1280 1180 1100 940 780  650 580 520 470 430  400 370 375 330	10300 40300 57600 60500 51500 44900 40400 28900 20500 15000 11600 9650 8320 7850 8270 7940 7240 6790	CONCENTRATION (MG/L)  JULY  212 230 275 310 318 320 310 295 295 380 700 790 800 730 650 590 520 475	2520 2810 3370 4060 4670 5130 4690 4470 5060 9510 22900 29600 31500 26600 20500 11800 9480	CONCEN- TRATION (MG/L)  AUGUS'  157 153 146 140 135 130 138 146 150 150 145 140 135 130 135 140 115 140 135 130 135 130 145 140 135 130 125 120 116 112	(TONS/DAY)  T  1110 1030 926 828 722 632 593 745 788 830 964 900 794 693 621 503 476 442 390	CONCEN- TRATION (MG/L)  SEPTEMI  84  82  80  79  78  76  75  73  72  71  70  69  68  68  67  67  66  65  64	(TONS/DAY) BER  168 165 159 155 144 117 112 98 97 93 85 67 65 67 65 62 67
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	CONCEN- TRATION (MG/L)  APR  132 130 125 120 115 110 107 104 102 100  98 96 93 91 89 87 86 85 84 83 82 81 80 80	(TONS/DAY)  IL  638 656 638 583 546 517 485 446 410 370 349 319 299 295 286 280 281 289 304 318 325 341 337 328	CONCENTRATION (MG/L)  MAY  75  74  74  73  73  72  72  85  130  340  360  350  325  322  320  320  320  320  310  1500  1550  1100  700  520  450	(TONS/DAY)  286 266 266 266 266 269 249 243 326 463 1210 1790 2130 1870 1660 1610  1710 4560 39500 54000  41300 26600 17800 17800 12600	CONCEN- TRATION (MG/L)  JUNE  350 1050 1450 1400 1350  1280 1180 940 780  650 580 520 470 430  400 370 370 345 330 310 290 280 270 260	10300 40300 57600 62000 51500 44900 40400 28900 20500 15000 15000 8320 7850 8270 7940 6790 6470 5730 4960 4940 4950	CONCENTRATION (MG/L)  JULY  212 230 275 310 318 320 310 295 295 380 700 790 800 730 650 590 520 475 430 395 355 330 300	(TONS/DAY)  2520 2810 3370 4060  4670 5130 4690 4470 5060  9510 22900 29600 31500 26600  20500 11800 9480 7600  6220 4850 4060 3360	CONCEN- TRATION (MG/L)  AUGUS'  157 153 146 140 135 130 138 146 150 150 145 140 135 130 101 101 101 101 101 101 101 101 101	(TONS/DAY)  T  1110 1030 926 828 722 632 593 745 788 830 964 900 794 693 621 503 476 442 390 376 442 390 376 346 317 303 291	CONCEN- TRATION (MG/L)  SEPTEMI  84  82  79  78  76  75  73  72  71  70  69  68  67  66  65  64  63  64  65  67  76	(TONS/DAY) BER  168 165 159 155 144 117 112 98 97 93 85 67 67 65 62 67 67 65 65 67 73